

Livestock Grazing and Vegetation Management on 6 Project Areas

Landscape Aesthetics/Scenic Integrity Report



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Introduction

This report will focus on the aesthetic quality of the six project areas – particularly the visual experience of the landscape. The existing scenic integrity of the project areas and the expected degree of deviation from a natural appearance will be discussed for in each alternative grazing and vegetation management scheme. Appendix A of this report summarizes law, regulation and policy related to the scenic integrity of the forest. Appendix B defines selected scenery management terms and concepts. Appendix C lists travel routes where user concern for scenic integrity has been inventoried as high (concern level1) or moderate (concern level 2) .

Overview of the SCENIC INTEGRITY Issue - #11

There is a concern that the proposed vegetation treatments (prescribed fire, mechanical treatments and or herbicide) will affect scenic integrity.

There is a concern range use and development will affect scenic integrity.

Law, regulation and policy establish the basis for management of landscape aesthetics. The 2005 revised forest plan contains standards and guidelines for scenery and establishes scenic integrity objectives (SIO's).

The the existing scenic integrity levels and the scenic integrity objectives will be documented. Estimated effect on scenic integrity resulting from implementation of the proposed actions will be disclosed..

Implementing rangeland improvement maintenance guidelines 1 and 6 in addition to scenery management guidelines1, 4, 5 and 7 (FPlan pg1-34 and pg 1-57), will address potential effects of range improvement developments. Specific design criteria to meet the guidelines are discussed by alternative.

Indicator

- Estimated change in scenic integrity resulting from proposed actions

Affected Environment

Effects of livestock grazing and range structures are addressed for the project areas – Beaver Creek, Goose Creek, Little Horn River, Rock Creek and Tensleep Creek – as a group. The analysis for woody vegetation treatments, other than livestock grazing, is limited to the Beaver Creek and Little Horn River areas. The analysis area for treatment for spike moss (*Sellaginella densa*) is limited to the immediate vicinity of treatments in the Goose Creek area.

Existing and Desired Condition

The Bighorn National Forest was reserved from the public domain for the protection and management of natural resources more than 100 years ago. Relatively small areas of the Forest have been developed with the infrastructure (buildings, power and water utilities, all-weather roads) that support rural and urban development elsewhere. Livestock grazing occurred before the Forest Reserve and has continued since then. Incremental improvements in range condition have occurred in many parts of the forest over time. Many people do not recognize the long-term impacts of grazing use on the vegetation and scenic integrity; they regard these conditions as the natural condition of the landscape. Active management of timber stands for the production of wood products has had the most noticeable impact on scenic integrity in the past 50 years. A more recent emphasis on management of fuels and fire risk has resulted in new management activities with different – minimally monitored - impacts on scenic integrity.

The valued landscape character of the Bighorn National Forest is based on a “natural-appearing” theme. (In the most pristine parts of the Cloud Peak Wilderness the valued character is based on a “natural-evolving” theme).

From a scenery management perspective, the desired condition (i.e. valued landscape character) is derived from naturally occurring patterns of topography and vegetation. Pertinent elements of the desired landscape character include:

- Grasslands feature a range of native grasses and forbs in mid to late seral stage to maintain or enhance diversity. Where early seral communities occur they are replaced within appropriate time frames by a mid seral stage.
- Sagebrush continues to be a significant component of grassland vegetation.
- Large old trees are maintained in the landscape. Open grown, full crown trees occur occasionally at meadow edges.
- Aspen remains in the landscape. Some mixed stands of aspen and conifer are managed for color contrast in the views from major travel routes.
- Forest management is based on uneven aged stands and/or multi aged patches, particularly in the vicinity of travel routes and public use areas and.
- Bare soil and trampling caused by livestock, people or vehicles is minimal in grasslands and wetlands.
- Disturbed soils are revegetated with locally adapted native plants.
- Developed sites, range improvements and travel routes are tucked into the larger landscape, allowing the landscape to dominate views.
- The number and extent of developed sites, range improvements and travel routes would be at the functional minimum.

Both the scenic integrity inventory (SII) and the scenic integrity objectives (SIOs) have been mapped forest-wide. The scenic integrity inventory represents the existing condition. The scenic integrity objective represents the minimum desired condition

The following table shows where project area acres were mapped and classified in scenic integrity inventory (SII). It was developed from aerial photographs. Human modifications of the landscape - roads, fences, structures, dams, ditches, timber harvest and other developments - where major factors considered in mapping the existing scenic integrity. Grazing use and the condition of herbaceous vegetation was rarely considered in mapping SII because it is was not readily discernable in aerial photographs.

Table 1 Existing condition of project area acres

Project Areas	Scenic Integrity Inventory (SII - existing condition in acres)						Acres
	Very High	High	Moderate	Low	Very Low	Unacceptably Low	
Beaver Creek		27448	37648	1747	3683		70526
Goose Creek	21994	43074	9955	34001	1790		110814
Little Horn River		38696	34079	12502	14820	1983	102080
Rock Creek	7623	16770	4406				28799
Tensleep Creek	15439	10935	28008	29351	5368		89101
SII Acres	45056	136923	114097	77600	25662	1983	401320

The objective for landscape aesthetics and scenery management on National Forest System lands to attain the highest possible quality of landscape aesthetics and scenery commensurate with other appropriate public uses, costs, and benefits (FSM 2380.2).

The scenic integrity objectives (SIOs) are guidelines established in the Revised Forest Plan based on management area prescriptions. The SIO represents the minimum desirable condition or minimum level of scenic integrity consistent with the Plan

Table -1 Desired condition of project area acres

Project Areas	Scenic Integrity Objective(SIO-desired condition in acres)						Acres
	Very High	High	Moderate	Low	Very Low	Unacceptably Low	
Beaver Creek		604	46452	23470			70526
Goose Creek	15987	8914	55974	29939			110814
Little Horn River		41057	29574	31449			102080

Rock Creek	15578		13221			28799
Tensleep Creek	10316	17465	35181	25445		89060
SIO Acres	41880	68040	180402	110303		401279

The following table shows the current condition of the scenery resource based on a GIS (geographic information system) comparison of the existing condition (i.e. SII) and the desired condition (i.e. SIO). This comparison of inventory and objective values indicates some latitude for management activities that reduce the scenic integrity in most areas. The Little Horn and Tensleep areas have more modifications of scenery and correspondingly less ability to absorb new management activities than the other areas. The Rock Creek area shows substantial area below the scenic integrity objective; this reflects the high SIO assigned to the area recommended for wilderness designation, not a large number of modifications. A spatial display of this information is available in the electronic files as an ArcMap project with related tables (see references below).

Table -3 Current condition of scenic integrity in project area as a percent of total acres

Project Areas	Percent of Area –Above, At, and Below – Scenic Integrity Objective (SIO)					
	Above SIO	At SIO	One Level Below SIO	Two Levels Below SIO	Three Levels Below SIO	Four Levels Below SIO
Beaver Creek	52.3	40.8	4.3	2.6	0.0	0.0
Goose Creek	42.5	36.4	18.4	2.7	0.0	0.0
Little Horn River	19.0	48.3	23.3	7.3	1.9	0.2
Rock Creek	31.0	41.4	27.2	0.4	0.0	0.0
Tensleep Creek	20.6	49.0	24.9	5.1	0.5	0.0

Environmental Consequences

Methodology

Effects of livestock grazing and range structures are addressed for the project areas – Beaver Creek, Goose Creek, Little Horn River, Rock Creek and Tensleep Creek – as a group unless an area is specifically identified in the text. The effects analysis for proposed woody vegetation treatments, is limited to the Beaver Creek and Little Horn River areas. The effects analysis for treatment for spike moss (*Sellaginella densa*) is limited to the vicinity of proposed treatments in the Goose Creek area.

Scenic integrity is evaluated as a degree of deviation from a natural-appearing landscape that is created by human activities or alterations, such as livestock grazing or range improvements. The scenic integrity of an area falls along a continuum from very high to very low for a scale based on the degree of naturalness or natural appearance. A more detailed description of scenic integrity levels appears in appendix B.

Environmental consequences are described for the estimated qualitative change in scenic integrity. Quantitative estimates of various effects were not prepared. Specific effects are attributed to grazing activities, vegetation treatments and range improvements. These are generic effects based on the effect of a typical activity or improvement. Potential site-specific effects of the alternatives are addressed in design criteria

Incomplete and Unavailable Information

The estimated consequences described below are based on general knowledge of the Forest and on information derived from maps and aerial photographs. Information from interdisciplinary discussion or direct field inspection is limited for many portions of the project areas.

For range improvements, the completeness of GIS data and its consistency with EIS Appendix B information appears to vary across project areas. . The design criteria, including monitoring items, will be used to minimize the scenic integrity effects (if any) of range structures and other improvements not addressed individually..

Spatial and Temporal Context for Effects Analysis

The project areas combined contain more than 400,000 acres and more than one third of the forest area. The spatial boundary for the direct indirect and cumulative effects analysis is the project areas. The effects on scenic integrity will be estimated for the areas as a group, except where significant differences are identified for a particular area in the text. The temporal boundary is both short- and long-term. One to ten years was considered a short-term unless otherwise defined for a particular effect in the text.. Long-term effects were projected for a period of ten to fifty years into the future unless otherwise defined for a particular effect in the text.

Alternative 1 – No action, no grazing

Direct and Indirect Effects - Alternative 1

Eliminating livestock grazing is expected to have a positive short term effect on scenic integrity by improving the vigor of rangeland grasses and forbs. For longer time periods the effect on scenic integrity is less certain and probably indirect. In some areas wildflower displays could decline with the increasing vigor of grasses. While the kind and intensity of natural change in the landscape may be significantly different from current conditions, those changes are assumed to be consequences of natural events (e.g., wildfire, woody plant encroachment in meadows) and do not influence scenic integrity. (By definition evaluations of scenic integrity are limited to the effects of human activities and management.)

In the absence of livestock grazing, alternative human uses and activities are likely to be introduced to the landscape but neither the activities nor the effects on scenic integrity are predictable. This indirect effect on scenic integrity in long time frames is uncertain and unclassified.

Range management structures alter a natural appearing landscape by introducing human constructions and usually have a negative effect on scenic integrity. The negative effect of range improvement structures on scenic integrity would be reduced under alternative 1. Removing some structures could increase scenic integrity. The increase in scenic integrity would be modest since range improvements generally have a small footprint in the larger landscape.

In a few cases a range improvement is an attractive cultural feature in a natural-appearing landscape and removal would not improve scenery. Examples might include a cow camp cabin, corral, or pond. The design quality and appropriateness, as well as the condition and maintenance, are factors influencing the effect of range structures on scenery.

Compliance with Forest Plan and Other Relevant Laws, Regulations, Policies and Plans

Alternative 1 is consistent with the Forest Plan guidelines for scenery management.

Cumulative Effects - Alternative 1

Past, present and reasonably foreseeable actions that affect scenic integrity include livestock grazing, timber harvest, aspen regeneration treatments, conifer encroachment treatments, fuels reduction and dispersed recreation (primarily motorized). Each of these activities can result in human caused decreases in the scenic integrity (natural appearance) of the forest over various time periods. Under alternative 1 an increase in scenic integrity resulting from discontinuing grazing and removing some structures would off-set some decreases in scenic integrity resulting from other activities. This would be both a short and long term effect.

Alternative 2 – No Change, current grazing management

This alternative includes livestock grazing under current management options. It retains existing range improvements and rebuilds or replaces them as needed. Grazing is the only vegetation treatment proposed.

Design criteria specific to scenery management were proposed to the interdisciplinary team as shown in the table immediately below. As a result of the interdisciplinary process to develop design criteria for multiple resources – the final design criteria for the EIS were written as shown in the second table below.

Proposed Design Criteria - Alternative 2

Design criteria applicable to replacement of range management improvements across all project areas	
	Locate and construct fence lines using techniques to minimize the visual impact including: 1) build outside foreground and middle ground views to reduce visibility; 2) build away from travel-ways to reduce visual dominance; 3) follow topographic and vegetative breaks to repeat naturally occurring lines; 4) build inside the tree line for screening instead of across meadow openings; 5) avoid ridge tops and other locations with sky-line or silhouetted views; 6) minimize linear clearing of trees and large shrubs for fence lines - feather clearing edges; 7) use temporary fences and remove promptly when the period of use ends. (Scenery Issue 11a)
	Select sites for range management structures (ex. stock tanks, spring boxes, corrals etc.) that are screened by landforms and/or vegetation from viewpoints on travel-ways and in recreation use areas. If range improvements cannot be screened from view, consider temporary structures and consult the landscape architect to identify and evaluate sites where the improvements will be subordinate the natural landscape. Consider concern level ratings for travel routes and use areas to identify potential locations. Structures viewed from routes and use areas with no concern level rating and those with a concern level three rating are usually more appropriate than structures viewed from routes and use areas with a concern level one or concern level two rating. (Scenery Issue 11a)
	Select the best available materials – considering color, texture, form, and line – for range structures (ex. stock tanks, fence posts, spring boxes, corrals etc.) to blend with the natural landscape. Muted tones of grey and brown will generally blend well. Avoid materials with reflective surfaces as much as possible. (Scenery Issue 11a)
	Locate salt and supplement areas out of view from roads and trails to minimize the visual impact of trampling and vegetation changes for travelers. (Scenery Issue 11a)
	Do not authorize mobile/temporary livestock management camps in areas closed to public camping, if an alternative is available. Locate livestock management camps so they are not visible from scenic byways, if an alternative is available. (Scenery Issue 11a , Recreation Compliance Issue #?)
	Locate bedding grounds ¼ mile beyond concern level 1 and 2 travel routes (i.e. outside the immediate foreground zone). (Scenery Issue 11)

Final Design Criteria - Alternative 2

4.	Design and locate replacement stockwater pipelines to be out of view from open forest system roads and trails, where feasible. Where feasible, bury permanent pipelines. (Issue 11)
5.	When replacing or installing improvements (e.g., stock tanks, fence posts, spring boxes, corrals), choose the best available materials – considering color, texture, form, and line – to blend with the natural environment. (Issue 11)
8.	When locating and reconstructing fence lines, consider the following techniques to minimize the visual impact including: 1) build outside foreground and middle ground views to reduce visibility; 2) build away from travel-ways to reduce dominance; 3) follow topographic and vegetative breaks to repeat naturally occurring lines; 4) build inside the tree line for screening instead of across meadow openings; 5) avoid ridge tops and other locations with sky-line silhouettes views; 6) minimize linear clearing of trees and large shrubs for fence lines - feather clearing edges; 7) use temporary fences and remove promptly. (Issue 11)

9.	For reconstructed range management structures (e.g., stock tanks, fence posts, spring boxes, corrals) consider selecting sites that are screened by landforms and/or vegetation from viewpoints on travel-ways and in recreation use areas. If range improvements cannot be screened from view, consider temporary structures and evaluate sites where the improvements will be subordinate to the natural landscape. Consider concern level ratings for travel routes and use areas to identify potential locations. Structures viewed from routes and use areas with no concern level rating and those with a concern level three rating are usually more appropriate than structures viewed from routes and use areas with a concern level one or concern level two rating. (Issue 11)
14.	Use salt or supplement to draw livestock toward or away from specific areas for environmental, historic, and/or visual considerations. (Issues 3, 4, 6, 7, 10, and 11)
16.	In areas closed to camping, do not authorize mobile/temporary livestock management camps, if an alternative is available. (Issue 11)
17.	Along the scenic byways (Highways 16, 14 and 14A), locate livestock management camps so they are not visible from the byways, if an alternative is available. (Issue 11)
16.	In areas closed to camping, do not authorize mobile/temporary livestock management camps, if an alternative is available. (Issue 11)
17.	Along the scenic byways (Highways 16, 14 and 14A), locate livestock management camps so they are not visible from the byways, if an alternative is available. (Issue 11)
20.	Sheep must be bedded in a new location every 1 to 3 days to avoid leaving bed grounds with little residual vegetation and/or trampled soils. Bed grounds should be relocated annually where possible. (Issue 4, Issue 11))

Direct Effects and Indirect Affects - Alternative 2

Implementing alternative 2 is expected to have no effect on scenic integrity in the short term and mixed effects in the long term. In the short term, the percent of acres at or above the scenic integrity objective (SIO) is expected to be stable. In the long term, rangelands are expected to move toward the extremes of the scenic integrity scale.

Those areas at or moving toward mid to late seral stage are expected to move toward higher levels of scenic integrity over long periods of time. Those areas where range condition is not improving are expected to move to lower levels of scenic integrity over long periods of time.

Rangeland vegetation that remains in an early seral stage and isn't transitioning to mid-seral stage has less scenic integrity than more diverse vigorous plant communities of mid to late seral stages. Rangelands where plants have declined to the point that soil is bare and has lost its structure have very low or unacceptably low scenic integrity because the effects of use dominate the natural appearance of the landscape. These effects of livestock use were not inventoried on forest-wide SII maps, so a direct comparison with scenic integrity objectives is not available.

Range management structures may alter a natural appearing landscape. While most range improvements have a small footprint in a very large landscape, their effect increases with the number, extent, and density of improvements.

Under alternative 1 some existing range management structures and other improvements would be removed. There would be no change in the number, extent or density of structures or other improvements under Alternative 2. Under alternative 3 additions and changes would be made to structures and other improvements for range use. The impact of range improvements on scenic integrity under alternative 2 is greater than under alternative 1 and less than under alternative 3. There are fewer improvements under alternative 1 and more improvements in alternative 3. Retaining the existing range management improvements would not change the existing scenic integrity in the long or short term.

Cumulative Effects - Alternative 2

Past, present and reasonably foreseeable actions that affect scenic integrity include livestock grazing, timber harvest, aspen regeneration treatments, conifer encroachment treatments, fuels reduction and recreation. Each of these activities can result in human caused decreases in the scenic integrity (natural

appearance) of the forest over various time periods. Under alternative 2 – current grazing management - no cumulative effect on scenic integrity is expected in the short term. The cumulative effect of continuing the current grazing use and other foreseeable actions is expected to have a negative effect on scenic integrity over the long term.

Compliance with Forest Plan and Other Relevant Laws, Regulations, Policies and Plans

Where rangeland vegetation is not moving toward mid to late seral stages, the scenic integrity is in decline. This may occur over large areas but is more frequently the result of intensive use in small areas. At a site specific scale, the existing scenic integrity may be very low or unacceptably low, which would not comply with forest plan scenic integrity objectives (SIO's). These areas appear heavily altered by livestock grazing to a degree that dominates the valued landscape character. Scenery management guideline 3 applies and is quoted below. (FPlan Page 1-57)

3. For areas that do not currently meet the SIO, use the interim objective of "rehabilitation." Rehabilitate existing projects and areas that do not meet the SIOs specified for the area. Set priorities for rehabilitation considering the following:
- Relative importance of the area and the amount of deviation from the scenic integrity objectives.
 - Length of time it will take natural processes to reduce the scenic impacts so they meet the scenic integrity objective.
 - Length of time it will take rehabilitation measures to meet the scenic integrity objective.
 - Benefits to other resource management objectives to accomplish rehabilitation.

Alternative 3 – Proposed action, grazing with adaptive management and other vegetation treatments

This alternative continues livestock grazing under an adaptive management system. It changes the number, type and location of range improvements in some project areas. In addition to grazing, woody vegetation treatments utilizing some combination of prescribed fire, mechanical treatment, and herbicide are identified in the Beaver Creek area and in the Little Horn River area. Mechanical or biological controls are identified for concentrations of Ninebark in the Little Horn River area. Mechanical treatment of spikemoss is identified for locations in the Goose Creek area.

Design criteria specific to scenery management were proposed to the interdisciplinary team as shown in the table immediately below. As a result of the interdisciplinary process to develop design criteria for multiple resources – the final design criteria for the EIS were written as shown in the second table below.

Design Criteria - Alternative 3

Design criteria applicable to new or replacement range management improvements across all 5 project areas
Locate and construct fence lines using techniques to minimize the visual impact including: 1) build outside foreground and middle ground views to reduce visibility; 2) build away from travel-ways to reduce dominance; 3) follow topographic and vegetative breaks to repeat naturally occurring lines; 4) build inside the tree line for screening instead of across meadow openings; 5) avoid ridge tops and other locations with sky-line silhouettes views; 6) minimize linear clearing of trees and large shrubs for fence lines - feather clearing edges; 7) use temporary fences and remove promptly. (Scenery Issue 11)

Select sites for range management structures (ex. stock tanks, fence posts, spring boxes, corrals etc.) that are screened by landforms and/or vegetation from viewpoints on travel-ways and in recreation use areas. If range improvements cannot be screened from view, consider temporary structures and consult with the landscape architect to identify and evaluate sites where the improvements will be subordinate the natural landscape. Consider concern level ratings for travel routes and use areas to identify potential locations. Structures viewed from routes and use areas with no concern level rating and those with a concern level three rating are usually more appropriate than structures viewed from routes and use areas with a concern level one or concern level two rating. (Scenery Issue 11)
Select the best available materials – considering color, texture, form, and line – for range structures (ex. stock tanks, fence posts, spring boxes, corrals etc.) to blend with the natural landscape. Muted tones of grey and brown will generally blend well. Avoid materials with reflective surfaces as much as possible. (Scenery Issue 11) .
Select the best available materials – considering color, texture, form, and line – for range structures (ex. stock tanks, fence posts, spring boxes, corrals etc.) to blend with the natural landscape. Muted tones of grey and brown will generally blend well. Avoid materials with reflective surfaces as much as possible. (Scenery Issue 11)
Locate salt and supplement areas out of view from roads and trails to minimize the visual impact of trampling and vegetation changes for travelers. (Scenery Issue 11)
Do not authorize mobile/temporary livestock management camps in areas closed to camping, if an alternative is available. Locate livestock management camps so they are not visible from scenic byways, if an alternative is available. (Scenery Issue 11 , Recreation Compliance Issue #?)
Locate stockwater pipelines outside the view of travel routes open for public use. Bury pipelines to the maximum extent feasible

Design criteria applicable to vegetation treatments of sagebrush, fuel breaks, aspen conifer encroachment, and ninebark
Retain sagebrush canopy cover in the viewshed of concern level one and two travel routes to have approximately 30-50% of the area in >20% canopy cover, 10-20% of the area in 0-5% canopy and approximately 20-30% of the area in 20-30% canopy cover. . (Scenery Issue 11)
Use prescribed fire or piling and burning to clean-up the woody residue when sagebrush is treated with herbicides. (Scenery Issue 11)
Shape fuel breaks to reflect open-space patterns and topographic forms in the natural landscape. Vary the width of the break. Feather the vegetation to soften and blend edges. (USDA Handbook 608 pg 67-77) (Scenery Issue 11)
Evaluate potential visual impacts of fuel breaks when burn plans are developed with particular attention to views from off-Forest travel routes and use areas including the Red Gulch/Alkali Backcountry Byway. (Scenery Issue 11)
Plan for the location and treatment of burn piles to avoid creating rows or other patterns. Locate burn piles out of view from travel routes and use areas. Avoid burning or scorching forest edges, specimen trees, leave islands or leave trees by pulling fuels away from these feature before broadcast or spot burning. (USDA Handbook 608 pg 77) (Scenery Issue 11)
Retain a few conifers with full crowns in all available age classes at meadow edges to enhance scenic attractiveness (specimen trees). Emphasize this design criterion, when treating encroaching conifers, where edges are viewed from concern level one and two travel routes. (Scenery Issue 11)
Retain an occasional spruce in aspen stands viewed from concern level one and two travel routes to enhance scenic attractiveness (i.e. color and texture contrasts). (Scenery Issue 11)

Design criteria applicable to sheep allotments
Locate bedding grounds ¼ mile beyond concern level 1 and 2 travel routes (i.e. outside the immediate foreground zone). (Scenery Issue 11)
Design criteria applicable to spikemoss treatment in the Goose Creek project area in Tourist Horse, Rapid Creek C&H, and Big Goose C&H allotments
Sites disturbed by spikemoss treatment will be reseeded with a locally adapted native seed mix.

Final Design Criteria - Alternative 3

4.	Design and locate new or replacement stockwater pipelines to be out of view from open forest system roads and trails, where feasible. Where feasible, bury permanent pipelines. (Issue 11)
5.	When replacing or installing improvements (e.g., stock tanks, fence posts, spring boxes, corrals), choose the best available materials – considering color, texture, form, and line – to blend with the natural environment. (Issue 11)
8.	When locating, constructing or replacing fence lines, consider the following techniques to minimize the visual impact including: 1) build outside foreground and middle ground views to reduce visibility; 2) build away from travel-ways to reduce dominance; 3) follow topographic and vegetative breaks to repeat naturally occurring lines; 4) build inside the tree line for screening instead of across meadow openings; 5) avoid ridge tops and other locations with sky-line silhouettes views; 6) minimize linear clearing of trees and large shrubs for fence lines - feather clearing edges; 7) use temporary fences and remove promptly. (Issue 11)
9.	For new or reconstructed range management structures (e.g., stock tanks, fence posts, spring boxes, corrals) consider selecting sites that are screened by landforms and/or vegetation from viewpoints on travel-ways and in recreation use areas. If range improvements cannot be screened from view, consider temporary structures and evaluate sites where the improvements will be subordinate the natural landscape. Consider concern level ratings for travel routes and use areas to identify potential locations. Structures viewed from routes and use areas with no concern level rating and those with a concern level three rating are usually more appropriate than structures viewed from routes and use areas with a concern level one or concern level two rating. (Issue 11)
14.	Use salt or supplement to draw livestock toward or away from specific areas for environmental, historic, and/or visual considerations. (Issues 3, 4, 6, 7, 10, and 11)
16.	In areas closed to camping, do not authorize mobile/temporary livestock management camps, if an alternative is available. (Issue 11)
17.	Along the scenic byways (Highways 16, 14 and 14A), locate livestock management camps so they are not visible from the byways, if an alternative is available. (Issue 11)
16.	In areas closed to camping, do not authorize mobile/temporary livestock management camps, if an alternative is available. (Issue 11)
17.	Along the scenic byways (Highways 16, 14 and 14A), locate livestock management camps so they are not visible from the byways, if an alternative is available. (Issue 11)
Design criteria applicable to sheep allotments	
20.	Sheep must be bedded in a new location every 1 to 3 days to avoid leaving bed grounds with little residual vegetation and/or trampled soils. Bed grounds should be relocated annually where possible. (Issue 4, Issue 11))
Design criteria applicable to prescribed burning and vegetation treatment in the Little Horn and Beaver Creek project areas	
27.	Follow the recommendations in the <i>Wyoming Guidelines for Managing Sagebrush Communities with Emphasis on Fire Management</i> (Wyoming Interagency Vegetation Committee 2002) to treat sagebrush. Coordinate with the WGFD when developing burn plans or other vegetation treatment plans. Retain sagebrush canopy cover, measured at the landscape scale (allotment or watershed as defined in the treatment plan), to have approximately 30-50% of the area in > 20% canopy cover, 10-20% of the area in 0-5% canopy, and approximately 20-30% in the 5-20% canopy range. (Issue 6, Issue 11)

30.	When treating sagebrush and timber, strive for a mosaic pattern over the landscape, mimicking natural disturbance processes and age class diversity. (Issues 4 and 11)
31.	In areas where mechanical treatments of trees (including encroachments) are proposed, retain a few conifers with full crowns in all available age classes at meadow edges to enhance visual attractiveness. Emphasize this design criteria where edges are viewed from concern level one and two travel routes. (Issue 11)
32.	In aspen stands where mechanical treatments are proposed, retain an occasional conifer when viewed from concern level one and two travel routes to enhance scenic attractiveness. (Issue 11)
Design criteria applicable to spikemoss treatment in the Goose Creek project area in Tourist Horse, Rapid Creek C&H, and Big Goose C&H allotments	
39.	Sites disturbed by spikemoss treatment will be reseeded with a native seed mix.

Direct and Indirect Effects- Alternative 3

Alternative 3 – Implementing alternative 3 is expected to have varied effects on scenic integrity in both the short term and long term.

Rangeland vegetation is expected to move toward higher scenic integrity levels over both short and long time periods under this alternative. Grazed areas at or moving toward mid to late seral stage is expected to maintain high levels of scenic integrity over short and long term.. Grazed areas in an early seral stage that are not currently improving are expected to improve as adaptive management tools are applied.

.A projected increase in range management structures and improvements under adaptive management techniques could decrease scenic integrity in the short and long term. Most range improvements have a small footprint in a very large landscape, though their impact increases with increases in the number, extent, and density of improvements. The increase in range structures under alternative 3 is expected to have a small negative effect on scenic integrity. The effect of range structures and other improvements would be greater under alternative 3 than under alternatives 1 or 2. The proposed additions in several of the Tensleep area allotments(Monument, North Canyon, and South Canyon) could reduce the existing scenic integrity from moderate to low. The Forest Plan scenic integrity objective in the allotments varies from moderate to low. Applying the suggested design criteria is expected to result in structures that are either not evident or are visually subordinate in the landscape. Structures that are visually subordinate to the landscape meet a moderate SIO,

Mechanical treatment of about 800 acres to reduce spikemoss in the Rapid Creek, Big Goose and Tourist Allotments of the Goose Creek area is a proposed adaptive management technique. Since this is a new treatment on the Forest, both the effects and the duration of effects are uncertain. The location of some treatment areas adjacent to the Red Grade Road (FR 26) is of particular concern for scenery. This route was assigned a high level of concern for scenery and there are several cabins and campgrounds in the vicinity. Treatment of spikemoss is estimated to have a negative effect on scenic integrity in the short term and no effect in the long term.

For the Beaver Creek and Little Horn project areas, alternative 3 includes up to 15,000 acres of woody vegetation treatment to be accomplished by some combination of prescribed burning, felling, mowing, and/or herbicide application over a 15 year period. The reduction of woody vegetation and the visual impact is expected to persist for up to 30-years. Design criteria for vegetation treatments are intended to minimize visual effects in the short term – 0-30 years. If all proposed acres are treated in a 15 year period the effects on scenic integrity would increase up to a maximum at year 15. For example, if the existing condition is moderate scenic integrity, then vegetation treatments could result in low scenic integrity. Scenic integrity would gradually return to the original level over the long term (30-50 years). More site specific information on the existing scenic integrity level and the scenic integrity objective for proposed sagebrush treatment areas is available in the electronic files as an ArcMap project and related spreadsheets (see references below).

Changes in the existing vegetation pattern may be visually significant along the Forest boundary in the Beaver Creek area where two permanent fuel breaks are proposed. Prescribed fire would be used to clear woody vegetation – sagebrush and timber – and open rangeland vegetation would be maintained over the long term. These areas currently have high scenic integrity. The Forest Plan objective is moderate or low scenic integrity. While there may be a decline in scenic integrity as result of the new fuel breaks, the application of the suggested design criteria during development and implementation of the burn plans is expected to meet scenic integrity objectives.

Less extensive areas of aspen regeneration, conifer encroachment treatments, and ninebark treatment are proposed. These treatments may have a small local effect on scenic integrity. The application of design criteria would minimize effects and enhance scenic attractiveness by providing for visual diversity in views from travel routes and use areas.

In the short term (up to 30 years), the percent of acres at or above the scenic integrity objective (SIO) is expected to decline slightly as a result of treating vegetation including sagebrush, lodgepole pine, Douglas-fir, spruce-fir aspen, ninebark and spike moss. In the long term (more than 30 years) effects of vegetation treatments on scenic integrity are uncertain.

Cumulative Effects – Alternative 3

Past, present and reasonably foreseeable actions that affect scenic integrity include livestock grazing, timber harvest, aspen regeneration treatments, conifer encroachment treatments, fuels reduction and recreation use and development). Each of these activities can result in human caused decreases in the scenic integrity (natural appearance) of the forest over various time periods.

Under alternative 3 estimated effects vary by area. The cumulative effect on scenic integrity is expected to be negligible for the Rock Creek area where range conditions could improve and potential new structures are limited. This is for both short and long term time periods.

The potential treatment of approximately 800 acres to reduce spike moss in the Rapid Creek, Big Goose and Tourist Allotments of the Goose Creek area occurs in an area with existing recreation and water developments. The inventoried condition is below the scenic integrity objective in a portion of the treatment area. The cumulative effect could be a reduction in scenic integrity of the area in the short term. The cumulative effect on scenic integrity in some parts of the Tensleep area is expected to be a decline. The number of additional range improvements in South Canyon and Monument allotments would have long term effects on scenic integrity. Improvements in range condition are not expected to balance the negative effects of additional improvements (range improvements and heritage resource protections) added to the effects of the Southwest Fuels project and past timber sales in the North.

Canyon Allotment. This cumulative effect would apply to both short and long term time periods. However the intensity of vegetation based effects would decline gradually over the long term.

Improvements in range condition and the addition of proposed range structures in the Beaver Creek and Little Horn project areas are expected to have no net cumulative effect on scenic integrity. The proposed treatments of woody vegetation, past timber sales, and implementable decisions (i.e. Hunt Mountain Prescribed Fire Decision Notice, Little Horn Prescribed Burn Decision Notice) to treat woody vegetation (cover extensive areas in and adjacent to the Beaver Creek and Little Horn areas. The cumulative effects of these treatments are expected to be visually evident and reduce scenic integrity in the short and long time frames. Several large wildfires have moved vegetation to earlier seral stages in portions of the Beaver Creek and Little Horn areas. Where past management actions have resulted in low levels of existing scenic integrity, additional treatment could move the scenic integrity below the forest plan SIO for the area. This is more of an issue for the Little Horn area than the Beaver Creek area because about 33% or 33,400 acres of the Little Horn area is inventoried below the scenic integrity objective. In comparison about 7% or 4,900 acres of the Beaver Creek area is inventoried below the objective.

Monitoring Recommendations

Forest plan monitoring of resource activities and uses for consistency with landscape character goals and scenic integrity objectives will provide information on the effect of the selected alternative on scenery. (FPlan pg. 4-28).

If alternative 3 is implemented, evaluate the validity and effectiveness of the design criteria for vegetation management on scenic integrity in the Beaver Creek and Little Horn areas. Monitoring would include field review before and after vegetation treatments.

If alternative 3 is implemented, monitor the visual effect of spikemoss treatment and seeding in the Goose Creek area.

References

- Excel Pivot Tables, Photos, and other Documents filed at
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Appendix A – Law, Regulation, and Policy

Statutes, Regulation, Objectives and Policy Applicable to the Analysis

Authority for management of landscape aesthetics lies primarily in the following acts and the implementing regulations:

- National Environmental Policy Act of 1969 (41 U.S.C. 4321);
- Forest and Rangeland Renewable Resources Planning Act of 1974 (16 U.S.C. 1601);
- National Forest Management Act of 1975 (16 U.S.C. 1600).

Objective for landscape aesthetics and scenery as stated in FSM 2380.2:

To manage National Forest System lands to attain the highest possible quality of landscape aesthetics and scenery commensurate with other appropriate public uses, costs, and benefits.

Policy for scenery management as stated in FSM 2380.3:

1. Inventory, evaluate, manage, and, where necessary, restore scenery as a fully integrated part of the ecosystems of National Forest System lands and of the land and resource management and planning process.
2. Employ a systematic, interdisciplinary approach to scenery management to ensure the integrated use of the natural and social sciences and environmental design.
3. Ensure scenery is treated equally with other resources.
4. Apply scenery management principles routinely in all National Forest System activities.

Direction and Guidelines from the Forest Plan

Forest-wide objective and strategy statement from Chapter 2 of the Forest Plan:

- Objective 2.c: Improve the capability of the Bighorn National Forest to provide a desired sustainable level of uses, values, products, and services.
- Outside MA 4.2, manage for high quality scenic landscapes consistent with forest plan desired conditions and scenic integrity objectives (SIOs). Restore 10% of landscapes that do not meet scenic integrity objectives.

Forest-wide guidelines for scenery in Chapter 2 of the Forest Plan:

1. Integrate the protection of aesthetic values with all resource planning. Management activities will be consistent with the SIOs and landscape character goals unless otherwise documented in a NEPA decision.
2. Initiate scenery mitigation within one year in high and moderate SIO areas and within three years in low SIO areas.
3. For areas that do not currently meet the SIO, use the interim objective of "rehabilitation." Rehabilitate existing projects and areas that do not meet the SIOs specified for the area. Set priorities for rehabilitation considering the following:
 - Relative importance of the area and the amount of deviation from the scenic integrity objectives.
 - Length of time it will take natural processes to reduce the scenic impacts so they meet the scenic integrity objective.
 - Length of time it will take rehabilitation measures to meet the scenic integrity objective.
 - Benefits to other resource management objectives to accomplish rehabilitation.
4. Plan, design, and locate vegetative manipulation in a scale that retains the color and texture of the landscape character, borrowing directional emphasis of form and line from natural features.

5. Choose facility and structure design, color of materials, location, and orientation to meet the SIO and landscape character goals for the area. Refer to the BEIG.
6. At the project scale, use scenery analysis to refine or correct the scenic integrity objective as defined in the management area guidelines. Any changes will be disclosed in the environmental analysis document, with a map and description.
7. Within the seen area of scenic byways and developed recreation sites, maintain quality scenery and recreation experiences while managing forest vegetation to provide vegetative diversity. The highest priorities for protection of scenic quality are scenic byways and developed recreation sites.

Appendix B – Scenery Management Terms & Concepts

Definitions

- Valued Landscape Character
 - It is defined as a combination of biological, physical and cultural attributes in a geographic area that create the socially valued image or aesthetic identity of the place.
 - Elements of landscape character may include landforms, vegetation, water features, wildlife, air quality, weather and sky phenomenon, and cultural or historic features.
 - A description of the valued landscape character is the standard from which the degree of alteration is judged.
 - For most Bighorn National Forest areas the valued character is based on a “natural-appearing” theme. In the most pristine parts of the Cloud Peak Wilderness the valued character is based on a “natural-evolving” theme.
- Visually Dominate / Visually Subordinate
 - An observer sees landscapes in terms of dominance elements – line, form, color and texture.
 - The visual strength of the dominance elements -- whether naturally occurring or introduced – define and describe aspects of the landscape. Elements of a scene that are visually forceful dominate the landscape. Elements of a scene with secondary visual impact are visually subordinate

Scenic Integrity Scale

Levels of Scenic Integrity		
VERY HIGH	Unaltered	Deviations are minute.
Very High scenic integrity refers to landscapes where the valued landscape character “is” intact with only minute if any deviation. The existing landscape character and sense of place is expressed at the highest possible level.		
HIGH	Appears unaltered	Deviations are not evident.
High scenic integrity refers to landscapes where the valued landscape character “appears” intact. Deviations may be present but must repeat the form, line, color, texture and pattern common to the landscape character so completely and at such scale that they are not evident.		
MODERATE	Slightly altered	Deviations are visually subordinate.
Moderate scenic integrity refers to landscapes where the valued landscape character “appears slightly altered”. Noticeable deviations must remain visually subordinate to the landscape character being viewed.		
LOW	Moderately Altered	Deviations begin to dominate.
Low scenic integrity refers to landscapes where the valued landscape character “appears moderately altered”. Deviations begin to dominate the valued landscape character being viewed but they borrow valued attributes such as size, shape, edge effect and pattern of natural openings, vegetative type changes or architectural styles outside the landscape being viewed. They should not only appear as valued character outside the landscape being viewed but compatible or complimentary to the character within.		
VERY LOW	Heavily Altered	Deviations strongly dominate.
Very low scenic integrity refers to landscapes where the valued landscape character “appears heavily altered”. Deviations may strongly dominate the valued landscape character. They may borrow from valued attributes such as size, shape, edge effect and pattern of natural openings, vegetative type changes or architectural styles within or outside the landscape being viewed. However deviations must be shaped and blended with the natural terrain (land forms) so that elements such as unnatural edges roads, landings and structures do not dominate the composition.		
UNACCEPTABLY LOW	Extremely Altered	Deviations are extremely dominate.
Unacceptably Low scenic integrity refers to landscapes where the valued landscape character being viewed appears extremely altered. Deviations are extremely dominate and borrow little if any form, line, color, texture, pattern or scale from the landscape character. Landscapes at this level of integrity need rehabilitation. This level should only be used to inventory existing integrity. It must not be used as a management objective.		

Appendix C – Travel Routes and Concern Levels

Definitions

- Travel routes for Scenery Management
 - Travel routes include forest system roads and trails. Travel routes also include some non-system roads and trails accessing dispersed camp sites, recreation residences, and recreation attractions or use areas.
 - Selected roads outside the Bighorn boundaries that provide views of the Forest are included in the travel routes for scenery management. (Routes outside the Forest are not included in the lists below which were selected by project area.)
- Concern Levels
 - Concern levels are an estimate of the degree of public importance placed on landscapes viewed from travel ways and use areas. Concern levels are expressed in three categories – high, moderate and low interest in scenery, or concern levels 1, 2 and 3, where 1 represents high interest and 3 represents low interest.
 - A concern level was assigned to travel routes and use areas on the Bighorn National Forest. Some travel routes were not assigned a concern level. These are generally roads closed to motorized travel or non-system routes.

High and Moderate Concern Level Routes by Project Area

BEAVER CREEK AREA			
CONCERN LEVEL	TRAVEL ROUTE		
	NUMBER	NAME	MILES
high	541	HORSE CREEK	2.23
high	10	HUNT MOUNTAIN	9.48
high	15	BURGESS	4.68
		HORSE CREEK	
high	212	MESA	4.48
high	213	DUGWAY	3.25
high	220	BULL OWEN	0.63
high	HWY14A	SCENIC BYWAY	4.51
		NON-SYSTEM	
high	U212D	ROUTE	0.56
		NON-SYSTEM	
high	U212D1	ROUTE	1.76
moderate	055	CEDAR CREEK	1.59
moderate	0102	DRY HORSE CREEK	3.01
moderate	103	ELKHORN	8.18
moderate	104	PETE'S HOLE	3.07
moderate	149	NORTH BEAVER	1.02
moderate	893	TORRY	2.31
moderate	122	BALD MTN	5.38
moderate	126	WHALEY CREEK	1.64
moderate	131	MAYLAND	0.73
moderate	132	PETE'S HOLE	0.78
moderate	143	ANTELOPE RIDGE	2.14
moderate	178	FOOLS CREEK	2.52
moderate	204	ELK SPRINGS	0.35
moderate	205	GROUSE CREEK	3.07

moderate	207	SUNLIGHT MESA	7.72
moderate	208	WOLF SPRINGS	2.12
moderate	209	LONG PARK	4.68
moderate	213	DUGWAY	6.14
moderate	217	WILEY CREEK	3.09
moderate	243	SUNLIGHT SPUR	3.02
		WILLEY CREEK	
moderate	649	SPUR	1.06

TENSLEEP AREA			
CONCERN LEVEL	TRAVEL ROUTE		
	NUMBER	NAME	MILES
high	031	ROCK	2.64
high	065	MIDDLE TENSLEEP	0.22
high	079	MCLAIN	1.47
high	098	VIRGINIA CREEK	4.78
high	18	OLD HIGHWAY 16	7.74
high	27	WEST TENSLEEP	6.95
		SHEEP MTN	
high	28	LOOKOUT	1.03
high	409	BOULDER PK TRLR PK	0.71
high	409A	BOULDER PK TRLR PK	0.23
high	409B	BOULDER PK TRLR PK	0.24
high	411	BALD RIDGE	5.47
high	419	BABY WAGON	0.82
high	429	HIGH PARK	1.38
high	438	DEER HAVEN DRAW	1.20
high	442	TYRELL RGR STATION	0.50
high	907	SPRING DRAW LOT G	0.05
high	HWY16	SCENIC BYWAY	22.74

high	UT409A	NON-SYSTEM ROUTE	1.17	high	295	EAST FORK C.G.	0.65
high	UT426A	NON-SYSTEM ROUTE	0.78	high	296	BIG GOOSE R.S.	1.55
moderate	031	ROCK	1.46	high	299	WESTON RESERVOIR	0.78
moderate	065	MIDDLE TENSLEEP	0.83	high	314	LITTLE GOOSE PARK	6.87
moderate	067	HIGHLINE	4.04	high	586	EAST FORK FISHING	0.23
moderate	24	BATTLE PARK	4.19	high	922	SPEAR-O-WIGWAM	0.18
moderate	25	CANYON CREEK	3.93	high	933	DOTY CABIN	0.05
		N. FORK POWDER		high	938	CAMP DAVID CABIN	0.05
moderate	29	RVR	1.61	high	949	BIG GOOSE CABINS 8	0.19
moderate	419	BABY WAGON	0.91	high	956	BIG GOOSE CABINS 1	0.19
moderate	430	EAST LAKE	4.93	high	957	BIG GOOSE CABINS 2	0.21
moderate	431	LAKE CREEK	3.09	high	958	BIG GOOSE CABINS 3	0.11
moderate	448	MUNKRES PASS	0.70	high	959	BIG GOOSE CABINS 4	0.15
moderate	450	WEBB CREEK	0.07	high	U26E	NON-SYSTEM ROUTE	0.21
moderate	452	GOLD MINE	4.40	moderate	003	QUARTZ CREEK	5.39
moderate	505	ONION GULCH	0.52	moderate	009	SAWMILL	4.25

ROCK CREEK AREA

CONCERN	TRAVEL ROUTE		
LEVEL	NUMBER	NAME	MILES
high	041	SOUTH ROCK CREEK	5.24
high	042	FRENCH CREEK	3.08
		NORTH SAYLES	
high	051	CREEK	1.33
high	133	FACE	3.63
high	549	FIREBOX	1.77
high	553	COW CAMP	0.98
high	366	CULL WATT	1.10
high	390	HUNTER MESA	0.41
		S ROCK CREEK	
moderate	007	CUTOFF	0.67
moderate	039	BALM OF GILEAD	2.70
moderate	041	SOUTH ROCK CREEK	1.83
moderate	042	FRENCH CREEK	4.48
moderate	043	MIDDLE ROCK CREEK	5.27
moderate	134	SWAMP	0.77
moderate	167	FRENCH MESA	1.07

moderate	014	WALKER PRAIRE	2.97
moderate	016	ROOSEVELT	2.92
moderate	019	TEEPEE	3.77
moderate	022	SAWMILL LAKES	1.96
moderate	028	PENROSE PARK	1.34
moderate	072	ALDEN CREEK	2.40
moderate	418	ROCK CHUCK PASS	2.59
moderate	628	KENNY WOOD	3.72
moderate	238	RAPID CREEK DIVIDE	2.41
moderate	283	DOMELAKE	1.69
moderate	285	TWIN LAKES P.G.	0.46
moderate	290	CUT ACROSS	3.69
moderate	291	MARTIN RESERVOIR	0.69
moderate	294	RANGER CREEK C.G.	0.30
moderate	299	WESTON RESERVOIR	3.81
moderate	309	LITTLE GOOSE	8.51
moderate	312	GAME CREEK	4.60
moderate	313	KENNIWOOD	1.68
moderate	321414	NON-SYSTEM ROUTE	0.62
moderate	521	LITTLE GOOSE PEAK	1.74
moderate	U283B	NON-SYSTEM ROUTE	0.11
moderate	UT0038A	NON-SYSTEM ROUTE	0.80

GOOSE CREEK AREA

CONCERN	TRAVEL ROUTE		
LEVEL	NUMBER	NAME	MILES
high	001	WOLF CREEK	1.19
high	014	WALKER PRAIRIE	7.71
high	015	SOLDIER CREEK	0.47
high	021	CONEY CREEK	3.58
high	023	GEDDES LAKE	5.53
high	025	EDELMAN	0.05
high	027	LITTLE GOOSE	3.40
high	038	SOLITUDE LOOP	4.71
		GLOOM CK	
high	025	HEADWTRS	0.47
high	092	COFFEEN PARK	0.26
high	26	BIG GOOSE	17.94
high	289	CROSS CREEK LAKES	2.00
high	293	COFFEEN PARK	7.14

LITTLE HORN AREA

CONCERN	TRAVEL ROUTE		
LEVEL	NUMBER	NAME	MILES
high	004	DRY FORK RIDGE	10.33
high	050	LITTLE HORN	13.06
high	074	FULLER	4.03
high	096	BOYD RIDGE	3.77
high	108	CRATER RIDGE	1.94
high	11	SHEEP MTN	2.74
high	110	BOYD RIDGE	7.04
high	111	MARBLE QUARRY	6.41
		CRATER RIDGE	
high	112	SPRINGS	3.87
high	125	LITTLE HORN	3.33
high	13	MED WHEEL RGR STA.	0.62
high	130	BALD MOUNTAIN C.G.	0.25

high	149	DRY FORK	0.73
high	15	BURGESS	8.50
high	HWY14A	SCENIC BYWAY	3.35
high	UH14AI	NON-SYSTEM ROUTE	0.38
moderate	006	LAKE CREEK DIVIDE	4.82
moderate	076	BULL ELK PARK	8.64
moderate	11	SHEEP MTN	2.59
moderate	110	BOYD RIDGE	2.29
moderate	111	MARBLE QUARRY	4.21
moderate	122	BALD MTN	0.04
moderate	125	LITTLE HORN	4.94
moderate	13	MED WHEEL RGR STA.	0.65
moderate	134	ROOSTER HILL	1.22
moderate	142	ICE CREEK	1.37
moderate	143	ANTELOPE RIDGE	1.73
moderate	145	DAYTON TAYLOR	0.45
moderate	147	BULL ELK PARK	1.97